

CLAIMS

1. A modular fixture member for holding a workpiece to a magnetized flat chuck plate comprising:
 - a base of ferromagnetic material for magnetic attachment to the chuck plate,
 - a hydraulically actuated workpiece support member fixed to said base,
 - a hydraulic pump for delivery of hydraulic fluid to and from said support member, said pump being fixed to said base, and
 - a fluid channel in said base for transporting hydraulic fluid between said pump and said support member.
2. The fixture member as recited in claim 1 in which one of said screw pump and said support member comprises a locating slot for engagement with an adaptor to a numerically controlled machine for placing said fixture member in a predetermined location on the chuck plate.
3. The fixture member as recited in claim 1 in which said support member comprises a support post for engaging the workpiece, said post comprising a rod slidable in a support member cylinder, said cylinder being adapted to receive hydraulic fluid for adjusting or maintaining the position of said post.
4. The fixture member as recited in claim 1 in which said support member comprises a clamp arm for engaging the workpiece, said clamp arm being carried on a rod slidable and rotatable in a cylinder, said cylinder being adapted to receive hydraulic fluid for rotating and adjusting the position of said rod.

5. The fixture member as recited in claim 1 in which one of said screw pump and said support member comprises a locating indentation for engagement with an adaptor to a numerically controlled machine for placing said fixture member in a predetermined location on the chuck plate.

6. A modular fixture member for holding a workpiece to a magnetizable chuck plate comprising:

a base of ferromagnetic material for magnetic attachment to the chuck plate,

a hydraulic workpiece clamp member fixed to said base,

a hydraulic screw pump for delivery of hydraulic fluid to and from said clamp member, said pump being fixed to said base, and

a fluid channel in said base for transporting hydraulic fluid between said pump and said clamp member.

7. The fixture member as recited in claim 6 in which said clamp member comprises a clamp arm, said clamp arm being carried on a rod slidable and rotatable in a clamp member cylinder, said cylinder adapted to receive hydraulic fluid for rotating and adjusting the position of said rod.

8. The fixture member as recited in claim 6 in which one of said clamp member and said pump comprises a locating slot for engagement with an adaptor for placing said fixture member on the chuck plate.

9. The fixture member as recited in claim 6 in which said hydraulic screw pump comprises a locating slot for engagement with an adaptor for placing said fixture member on the chuck plate.

10. The fixture member as recited in claim 6 in which said clamp member comprises a locating slot for engagement with an adaptor for placing said fixture member on the chuck plate.

11. A modular fixture member for holding a workpiece to a chuck plate comprising:

a base of ferromagnetic material, said base being adapted for magnetic attachment to the chuck plate,

a hydraulically actuated workpiece support member fixed to said base,

a hydraulic screw pump for delivery of hydraulic fluid to and from said support member, said pump being fixed to said base, and

a fluid channel in said base for transporting hydraulic fluid between said pump and said support member.

12. The support member as recited in claim 11 in which said support member comprises a support post adapted to engage the workpiece, said post comprising a rod slidable in a support member cylinder, said cylinder adapted to receive hydraulic fluid for adjusting or maintaining the position of said post.

13. The fixture member as recited in claim 11 in which one of said pump and said support member comprises a locating slot for engagement with an adaptor for placing said fixture member on the chuck plate.

14. The fixture member as recited in claim 11 in which support member comprises a locating slot for engagement with the adaptor for placing said fixture member on the chuck plate.

15. The fixture member as recited in claim 11 in which said hydraulic screw pump comprises a locating slot for engagement with an adaptor for placing said fixture member on the chuck plate.